On the Blanchard Classification of Macroeconomic Models*

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Blanchard (2017) returns to the topic of methodology in macroeconomic research to argue that we need at least five classes of models: foundational, dynamic stochastic general equilibrium (DSGE), policy, toy, and forecasting models. I agree with what I interpret to be the main point Blanchard has been making in his writings: We should not be dogmatic, and different types of models can all be useful in different ways. But I have some thoughts on the model classification system that he proposes and on the possible conclusions that readers may draw from it (which may not necessarily coincide with Blanchard's own).

I think Blanchard is right to include the basic real business cycle (RBC) model in the toy model category. My basic criterion to define toy models is whether or not I can solve them with pencil and paper. It is easy to solve for the steady state of the RBC model with pencil and paper, and to solve for the dynamics exactly under appropriate assumptions. Campbell (1994) shows clearly how one can solve the log-linearized RBC model with pencil and paper in more general cases. From my perspective, numerical applications of the basic RBC model serve illustration purposes more than anything else—or to establish benchmarks for comparison of the performance of alternative, possibly richer models.

Probably a more significant observation on Blanchard's latest post is that I think the categories of models that he describes often overlap, at least partly, with each other. Blanchard mentions that an RBC model with (monopoly power and) sticky-price distortion is the core of the DSGE category. For those who are less of insiders in macro modeling, it may be worth reiterating explicitly that the RBC model—a toy model—*is also a* DSGE model: It features dynamics, uncertainty, and general equilibrium. It may also be worth mentioning that the extent to which one should think of the RBC model as part of the DSGE core is largely arbitrary: The most plain-vanilla New Keynesian macro model (a DSGE model) does *not* include capital accumulation, and I would venture that most macroeconomists think of capital accumulation as central to the RBC framework. As Blanchard puts it, "the acronym DSGE is widely seen as referring to a specific class of models, namely RBC-based models with distortions." My guess is that this is because of the large diffusion of quantitative DSGE models building on Christiano, Eichenbaum, and Evans (2005) and/or Smets and Wouters (2007), but my view is that this gives a very distorted perception of the DSGE literature, which is much wider and more diverse—and often

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abstracts from a lot of the quantitative mechanisms embedded in the "RBC-based models with distortions" that Blanchard seems to have in mind.[1]

In apparent contrast to Blanchard, I think both toy models and DSGE models can be useful to think about policy questions. For instance, I think Eichengreen (1984) provides a great example of how to use a (non-DSGE) toy model to think about the consequences of lack of international cooperation in monetary policymaking during the interwar Gold Standard. It seems to me that the lessons from this paper and those events remained important far beyond understanding the failures of the interwar years. Obviously, Eichengreen's model does not provide *quantitative* insights, but I would disagree most strongly with the position that the only valuable lessons for policy should be of quantitative nature. And I can think of a large number of DSGE models, even of the toy variety, that provided valuable insights for policy. Examples and references can be found in Ghironi (2016 and 2017).

With respect to Blanchard's policy models category, my main comment can be inferred from the previous paragraph: It should not be the case that only those models should be used to explore policy questions. Valuable insights about policy can come from all categories of models. Indeed, the models Blanchard refers to as policy models are, in my opinion, better referred to as quantitative models for applied policy analysis. Moreover, it seems to me that also Blanchard's policy models category cannot be completely separated from the broad DSGE class. If policy models should be more loosely tied to theory than Blanchard's characterization of DSGEs, what exactly is the difference between a model that includes elements and relations that are not tightly grounded in theory (Blanchard's apparent characterization of a policy model) and a DSGE model that includes a wide menu of adjustment costs and shocks that make it fit the relevant data equally well? (Those who think that I am blindly in favor of that variety of DSGE model should really read this note I wrote to comment on a previous post by Blanchard. All I am stating here is that the boundary between Blanchard's policy models and DSGEs with ad hoc ingredients seems very blurry to me.)

I am also not quite sure how to interpret the distinction between foundational and toy models that Blanchard makes: I would argue that plenty of toy models were foundational and vice versa: IS-LM, Dornbusch's overshooting, Mundell's work. I see those as both toys and foundational. I also think the RBC model is foundational (and it is also a toy and a DSGE model) in the sense of providing the foundation for a very wide and diversified approach to macro that has branched in many directions. (This is a statement of fact, *not* an endorsement of the RBC model.)

I agree with Blanchard on forecasting models. And I guess I am both more optimistic and pessimistic than him when it comes to the conclusions. I am more optimistic than Blanchard on DSGEs because I think they delivered and will continue to deliver many valuable insights for policy formulation. I am more pessimistic than Blanchard on forecasting because I doubt there will ever be a winner in that game: If there is an apparent winner at any point, I bet it will only be a matter of time before the next crisis challenges its status. Even if that is part of the reason why many have such a low opinion of economists, it is also part of what makes economics so interesting.

[1] I state more on my view of the defining characteristics of DSGE models in Ghironi (2016).

To summarize, I think the Blanchard classification of macro models has problems, but I agree strongly with him on what I consider the core of his message: Macro should not be dogmatic, there is much to learn from different types of models, and these different models can learn from each other. And if this note made you curious, my own contribution to the *Oxford Review of Economic Policy* project on rebuilding macro that Blanchard alluded to, can be found here.

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